



ALICE-USA Computing Plan Assumption(s)

- Baseline computing
 - sufficient to deliver primary physics goals (EMCAL)
 - local MC and end-user analyses
 - not driven by Tier 1/2 definitions
- Addition to Baseline
 - Tier-1 class facility
 - additional physics opportunities
 - computing service commensurate with standing in ALICE



Tier 1 Requirements and Units

- From ALICE Computing TDR ch7
<http://aliceinfo.cern.ch/static/Documents/TDR/Computing/Chap7/chap7.pdf>
- Data Volume = $12.5 \text{ Gb/s} \cdot 10^6 \text{ sec/yr} = 1.25 \text{ Pb/yr}$

Year	cpu	disk	hppss
2007	5 MSI2K ~ 15 TF	3 Pb	3 Pb
2010	20 MSI2K ~ 60 TF	12 Pb	11 Pb

- Divide by N Tier-1 sites, where N~5
- Scale from PHENIX/STAR/CDF yields ~15 TF
- Bandwidth = 2 Gb/sec in, 0.03 Gb/sec out (**2009**)
- SPECINT2K benchmarks <http://www.spec.org/cpu2000/results/>
 - 1000 Intel Xeon 3.06 GHz = 6 TF = 1.1 MSI2K
 - 1000 AMD Opteron 2.6 GHz = 5.2 TF = 1.6 MSI2K



Baseline Estimates

- ALICE TRD table 7.4
 - sched. = $8.4 \text{ MSI} \times 20/200 \text{ people} = 0.84 \sim 2 \text{ TF}$
 - chaot. = $1.3 \text{ MSI} \times 20/200 \text{ people} = 0.13 \sim 0.5 \text{ TF}$
- STAR@PDFS
 - $2 \text{ TF} \times 50\% \times 20/50 \text{ people} \times 1.2/0.2 \text{ data} = 2.4 \text{ TF}$
 - 1/2 chaotic and 1/2 MC embed
- PHENIX@LLNL/UNM/VU
 - MC eff. + hijing = $0.5 \text{ TF} \times 20/50 \times 1.2/0.2 = 1.2 \text{ TF}$
 - chaotic = $0.015 \text{ TF} \times 20/2 \text{ people} \times 1.2 /0.2 = 0.8 \text{ TF}$
- All roads lead to 2-2.5 TF $\sim 1 \text{ MSI}$
 - = 500 cpu system in 2007



Current Facilities

Site	Cluster	Arch/OS	node	cpu	TF	Alice%	Alice TF	Web
OSU	P4	Xeon/Linux	256	2*2.4 GHz	1.2	0.15	0.18	http://www.osc.edu/hpc/h
	Itanium	Itanium/Linux	248	2*~1 GHz	0.5	0.16	0.08	
UH	TLC2	Itanium/Linux	152	2*1.3 GHz	0.4			http://www.tlc2.uh.edu/Fa
LLNL	ILX	Xeon/Linux	67	2*~1 GHz	0.7	0.15	0.11	http://www.llnl.gov/comp
	GPS	Alpha/Tru64	33	4*~0.7 GHz	0.3	0.15	0.05	
	MCR	Xeon/Linux	1152	2*~2.4 GHz	11.0	0.02	0.22	
LBNL	PDSF	Xeon/Linux	275	2*3.06 GHz	2.0	0.05	0.10	http://www.nersc.gov/nus
ORNL	ORNL	Xeon/Linux	13	2*3.06 GHz	0.2	0.5	0.10	
WS	WS		10	2*2 GHz	0.1	0.5	0.03	
Sum						16.4	0.86	

- Project to 2007
 - Status of OSU w/o NFS upgrade
 - redirection of other institutional computing resources
 - future purchases at LLNL



Baseline Additions

- OSU NFS proposal (next)
- UH TLC proposal
- LC proposal to LSTO
 - LLNL Computing request for 40 TF Opteron cluster met with considerable enthusiasm
 - Heavy Ion Group historically pulls 10-15% on a cluster
 - supporting data from 1995-present (E910/PHNX/ALICE)
 - support from Physics Office since 1999
 - Status on GRID
 - testing OSG client soon
 - jobs get pulled from GRID by LC account holders

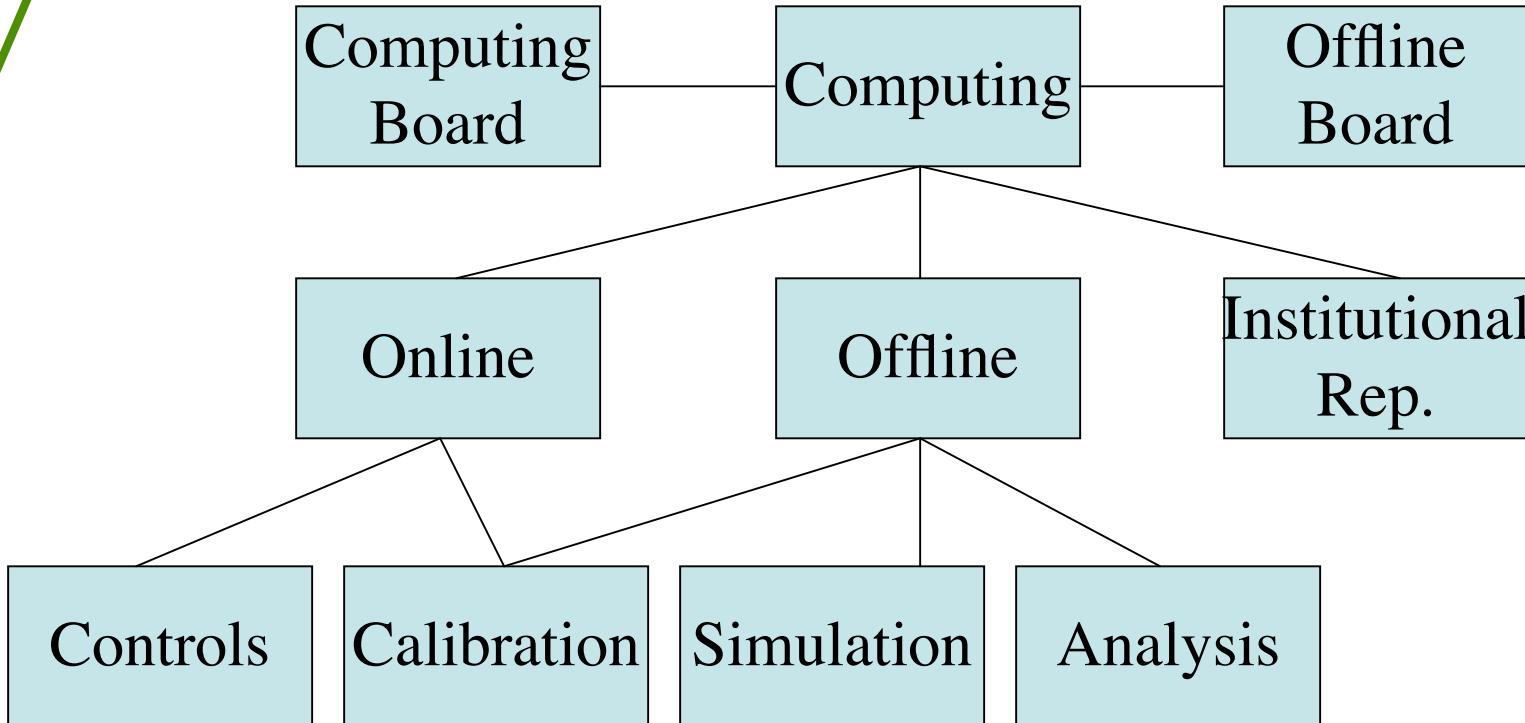


To Do

- Refine estimates
 - work in MSI2K, with disk and storage
 - **network*** needs and costs
- Collect more data from institutions
 - 2007 projections
- Prepare *careful* cost accounting
 - include all facilities
- Not give up non-DOE NP paths to Tier-1 center
- Assemble Computing Organizational Chart



Straw-person Org. Chart



Some boxes/lines may dissolve with official entry to ALICE